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**Status & Remarks**

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The application presently contains the following claims:

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<i>Independent Claim #</i>	<i>Dependent Claim #s</i>
1 (deleted)	
10 (amended)	2-4 (amended)
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	6-7 (amended)
	9 (amended)
	11-14
15 (deleted)	
16 (amended)	17-20 (amended)
21 (new)	22-32 (new)
33 (new)	34-42 (new)

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Claims 1 and 15 are deleted in conformity with the applicant's species election. Claims 2-4, 6-7, 9-10 and 16-20 are amended. Claims 21-42 are newly added. Support for the newly added claims may be found with reference to claims 10 and 16 as amended and further with reference to the issued claims found in United States Patent No. 6,824,711, from which this pending application claims priority. Support for the additional limitations in the claims, particularly with reference to the Markush definitions may be found with reference to the table following paragraph [0060] of United States Published Application US 2003/0001136 A1, which is the publication of the application of the instant pending application.

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**Claim Rejections – 35 USC §112**

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The examiner has rejected claims 2-7, 9-14 and 16-20 under this section, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the applicant's invention through the use of parenthetical letters. While not concurring with the position taken by the examiner, the applicant's attorney has nonetheless removed all parenthetical identifiers, thereby rendering this rejection moot.

The examiner has also rejected claim 9 under this section, second paragraph regarding insufficient antecedent basis for the limitation "said phosphite ester." The applicant's attorney has amended the claim thereby rendering this rejection moot.

The examiner has rejected claims 17-19 under this section, second paragraph regarding insufficient

antecedent basis regarding the limitation "polyvinyl chloride." The applicant's attorney has amended claims 17-19 thereby rendering this rejection moot.

The examiner has rejected claim 20 under this section, second paragraph regarding insufficient antecedent basis regarding the limitation "polyvinyl chloride." The applicant's attorney has amended claim 20 thereby rendering this rejection moot.

The examiner has rejected claims 4-7 and 16-20 under this section, second paragraph, as being indefinite regarding the limitation "and substituted derivatives thereof" to modify the bisphenol-based compounds and the pentaerythritol derived structures. In conformity with the suggestion of the examiner, this phrase has been deleted in light of the definitions provided for the Markush groups.

The examiner has further represented that in claims 4 and 16, there was an inconsistency regarding the description and the Markush definitions. The applicant has amended the claims to render this rejection moot.

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***Claim Rejections – 35 USC §103***

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The examiner has requested the applicant's attorney to review the issue of inventors in light of the restriction requirement. After making inquiry to the named inventors, the applicant's attorney represents that the named inventors remain correctly identified after consideration of this issue.

The examiner has indicated that claims 2-7, 9-14 and 16-20 are rejected under this section, subparagraph (a) as being unpatentable over Nosu et al. (JP-3-157437A, and USPTO obtained translation thereof). Specifically, the examiner has successfully found that the Japanese patent has identified phosphite compounds such as the applicant's Doverphos® 613 (3<sup>rd</sup> and 4<sup>th</sup> to the last lines of page 14 of the translation) or Doverphos® 1220 (line 19 of page 14) and concluded that it would have been obvious to one of ordinary skill in the art at the time of the invention to have employed mixtures of phosphate esters given the suggestion that they are effective for the same use and that by following the suggestions of the Japanese patent, the presently claimed subject matter is arrived at. With due respect for the opinion of the examiner, it is submitted that this may be reading far too much into the teachings of the Japanese patent.

The English-language translation of the Japanese patent provided by the Office clearly requires five components: (1) hydrotalcite; (2) zinc compound; (3) magnesium hydroxide; (4) a  $\beta$ -diketone compound or a phosphite compound; and (5) a resin, e.g., vinyl chloride polymer. By contrast, the applicant's invention does not require hydrotalcite or magnesium hydroxide, but **does require** at least two phosphite compounds, each selected from a defined class of phosphites. Therefore, the key is to find the motivation to combine two different phosphites from within the Japanese patent.

As the examiner is familiar with, most inventions arise from a combination of old elements and each

element may often be found in the prior art.<sup>1</sup> However, mere identification in the part art of each element is insufficient to defeat the patentability of the combined subject matter as a whole. The examiner must articulate the basis on which he concludes that it would have been obvious to make the claimed invention and explain the reasons one of ordinary skill in the art would have been motivated to select the references, or teachings contained therein and to combine them to render the invention obvious. This "motivation-suggestion-teaching" requirement protects against the entry of hindsight into the obviousness analysis, a problem which §103 was meant to confront.<sup>2</sup> Therefore, the "motivation-suggestion-teaching" test asks not merely what the references disclose, but whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims.<sup>3</sup>

Additionally, an obviousness determination requires not only the existence of a motivation to combine elements from different prior art references, but also that a skilled artisan would have perceived a reasonable expectation of success in making the invention via that combination.<sup>4</sup> However, to have a reasonable expectation of success, one must be motivated to do more than merely to "vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful."<sup>5</sup> Similarly, prior art fails to provide the requisite "reasonable expectation" of success where it teaches merely to pursue a "general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it."<sup>6</sup>

Applying the mandates of the Court of Appeal, Federal Circuit, it is clear that the Japanese patent merely provided a starting point for experimentation, and that only by trial and error, would perhaps, a serendipitous result be arrived at by the experimentalist as taught by the Dover Chemical invention, and as claimed in the pending application. There is absolutely no teaching within the translated Japanese patent to combine any phosphate as claimed in the present application, and to imply that there is would be to employ impermissible hindsight. In fact, it is respectfully submitted that an inventor of ordinary skill in the art, upon

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<sup>1</sup> *In re Leonard R. Kahn*, 441 F.3d 977, 987, (Fed. Cir. 2006), citing *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998)

<sup>2</sup> *Kahn* at 986; *Rouffet* at 1357-59

<sup>3</sup> *Kahn* at 988, citing *Cross Med. Prods.*, 424 F.3d 1293, 1321-24 (Fed. Cir. 2005)

<sup>4</sup> *Medichem, S.A. v. Rolabo, S.L.* 437 F.3d 1157, 1165 (Fed. Cir. 2006), citing *In re O'Farrell*, 853 F.2d 894, 903-04 (Fed. Cir. 1988)

<sup>5</sup> *Medichem* at 1165; *O'Farrell* at 903

<sup>6</sup> *Medichem* at 1165; *O'Farrell* at 903

seeing the depiction of one formula of phosphite, would more logically conclude that all of the enumerated categories were equivalent, thereby teaching away from the Dover Chemical invention, which teaches that they are different. It is hard to fathom what suggestion an experimentalist would be following to arrive at the claimed subject matter as stated by the examiner. There is none stated in the translation of the Japanese patent, thereby leading to the very result which the Court of Appeals, Federal Circuit cautioned against in *Medichem*, namely to "vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful." At best, the Japanese patent teaches merely to pursue a "general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it."

The examiner, perhaps anticipating the deficiencies of the predicate of the above rejection, has additionally rejected claims 2-7, 9-14 and 16-20 under this section, subparagraph (a) as being unpatentable over Valdiserri (US 4,614,756) alone or in view of York (US 4,116,926). However, for similar reasons to those advanced above, this rejection also fails to render obvious the pending claims in the application.

The examiner admits that Valdiserri teaches an invention which requires an organotin mercaptide compound. It is admitted that Valdiserri does have the goal of reducing the requirement for the very expensive organo tin mercaptides, and thus, would be a useful advance in the PVC compounding art. (see col. 1, lines 43-46). However, Valdiserri never achieves the goal of the applicant, namely the elimination of tin from the stabilizer package. By claim amendment, the option of still using some tin through the combination of the previous language, namely "essentially free of ... tin" coupled with the "consisting of" language, is no longer an issue. The claims now expressly exclude tin ... as well as calcium, cadmium and barium. The missing teaching, namely how to eliminate tin is not found by coupling the teaching of Valdiserri with that of York. In fact, if anything, actually teaches away from the invention. York teaches an improved stabilizer which requires a small proportion of triisopropanolamine. If an experimentalist would have been motivated to do anything, he would have added triisopropanolamine as a partial replacement to the reduced levels of organo tin mercaptide taught by Valdiserri.

The examiner has commented that the applicant's examples were considered, but in his opinion, they failed to provide sufficient data to conclude that a greater than additive effect is in evidence. With due respect for the conclusion drawn by the examiner, the applicant's attorney would respectfully request the examiner to reconsider this position. There is little doubt that there are other effective stabilizer packages present in the marketplace, some of which contain heavy organometallics, while others contain barium, while still others contain cadmium. At least one surprising aspect of the Dover Chemical invention is the fact that as shown in Fig. 5, which illustrates the exact species considered by the examiner, the combination diphosphite performed at least as well, and often times better than other commercially available stabilizer packages which contained heavy metals. This was shown again in Fig. 6. And perhaps most vividly, Fig. 7 illustrates one of the more important aspects of the invention, which is the minimization of volatiles elimination from the plastic. As shown

in the pending application, and present in the claims, the Dover Chemical invention matches performance of prior art mixed metal stabilizers, but is essentially toxic metal-free by utilization of phosphite ester compositions with catalytic amounts of zinc.

By changing the transitional language of the additive package to "consisting of" coupled with the elimination of calcium, cadmium, barium and tin from the additive package, it is respectfully submitted that the above claims distinguish in a non-obvious manner over the prior art of record.

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***Request for Consideration***


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Applicant believes that all independent claims clearly define over the prior art and that the distinctions between the present invention and the prior art would not have been obvious to one of ordinary skill in the art. Additionally, the remaining dependent claims, by the limitations contained in the base independent claims, are felt to be patentable over the prior art by virtue of their dependency from independent claims which distinguish over the prior art of record. All pending claims are thought to be allowable and reconsideration by the Examiner is respectfully requested.

It is respectfully submitted that no new additional searching will be required by the examiner. A fee determination sheet is attached for this amendment response. The Commissioner is hereby authorized to charge any additional fee required to effect the filing of this document to Account No. 50-0983.

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